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(54) INFRARED-TO-VISIBLE CONVERSION BLUE LIGHT EMITTING DIODE OF HIGH COLOR PURITY

(57)Abstract:

PURPOSE: To manufacture a diode which has a higher luminance and a higher color purity by forming a phosphor layer with epoxy resin wherein phosphor powder made of erbium-doped barium chloride is dispersed and forming a transparent resin mold with epoxy resin wherein an indanthrone blue pigment is dispersed.

CONSTITUTION: First, erbium is doped into barium chloride at the rate of 20, 30, and 40 to make three kinds of barium chloride conversion phosphor powders. After these three kinds of conversion phosphor powders are dispersed in epoxy resin, the epoxy resin is applied 0.3mm thick on a diode chip and is hardened. Next, an indanthrone blue pigment prepared as a pigment to absorb the light of long wave length components and expressed by the formula shown in the figure is mixed into the epoxy resin. By forming a transparent mold with this epoxy and using it as a blue color filter, almost all the long wave length components of the wave length 500nm or longer included in the transmitted light can be absorbed and almost all the visible light can be made into the blue light of the wave length 492nm.

